

## **Request for Proposals**

### **Fuel and vehicle flows in Western and Southern Africa**

Deadline: July 31<sup>st</sup>, 2015

#### **Summary of RFP**

The ICCT is seeking an experienced consulting group or individual with expertise in the downstream oil and the transportation sectors in Western and Southern Africa. The proposed project seeks to validate and enhance an existing database of fuel and vehicle flows, estimate future vehicle population and corresponding fuel consumption from transportation as well as describe the current regulatory context in the two regions. The ICCT will consider proposals that address a portion of the full project scope, for example a proposal focused on fuels or a proposal focused on vehicles.

#### **Budget**

Proposals can be up to US \$24,000 for the full scope described in the request for proposal. The ICCT will consider proposals that address a portion of the scope for less than US \$24,000.

#### **Timeframe**

Proposals must be submitted electronically to Fanta Kamakaté ([fanta@theicct.org](mailto:fanta@theicct.org)) and received by email by July 31<sup>st</sup>, 2015 by 5 PM Pacific Time.

#### **Contact**

Questions and submission responses to this request for proposal (RFP) should be addressed to Fanta Kamakaté ([fanta@theicct.org](mailto:fanta@theicct.org)) and Ray Minjares ([ray@theicct.org](mailto:ray@theicct.org)).

#### **Background on the ICCT**

The International Council on Clean Transportation is an independent nonprofit research organization founded to provide first-rate, unbiased technical and scientific analysis to environmental regulators and other stakeholders. Our mission is to improve the environmental performance and energy efficiency of road, marine, and air transportation, in order to benefit public health and mitigate climate change. More information about the organization and its programs is available at <http://theicct.org/>.

## Project background

The activities described in this RFP will be carried out as part of the the Climate and Clean Air Coalition's ([CCAC](#)) Heavy-duty Diesel Initiative (HDDI) Western and Southern Africa clean fuels and vehicles project. The CCAC is a multi government effort to support fast action to reduce short-lived climate pollutants that impact public health, food and energy security and climate. The [CCAC's Heavy-duty diesel initiative](#) is currently co-led by the International Council on Clean Transportation (ICCT), the United Nations Environment Programme (UNEP), the United States Environment Protection Agency and Environment Canada. The initiative is focused on reductions of black carbon emissions from diesel vehicle and engines through the adoption of clean fuel and vehicle regulations. The Western and Southern Africa clean fuels and vehicles project led by UNEP and the ICCT seeks to work with regulators to develop regional and national roadmaps for the adoption and implementation of clean fuels and vehicle standards, specifically to 50 ppm and 10 PPM for fuels and Euro IV/V and Euro6/VI levels for vehicles. These roadmaps will be established and refined during a series of regional, sub-regional and national workshops. UNEP and ICCT are working at the regional level with the Economic Community of West African States (ECOWAS), and the Southern African Development Community (SADC). The sub-regional and national activities are to be defined around fuel refining and import hubs. Details on the project's geographic scope are provided in the next section.

### Geographic scope

For the purpose of this RFP the Western and Southern Africa regions are defined by the membership in ECOWAS and SADC. The Western Africa region includes Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo. The Southern Africa region includes Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe. [FK1] The countries identified for national activities include Nigeria, Ghana, Côte d'Ivoire, Mozambique, South Africa and Botswana.

## Project scope of work

In 2014 the ICCT commissioned a global overview of auto fuel (both crude and refined) and vehicle markets in various sub-regions where higher sulfur fuels (in particular, diesel fuel) are still in use (fuels above 50 ppm). This included an assessment of the crude and refined fuel flows and vehicle markets in Western and Southern Africa. The results of that study, provided in Annex 1, are the starting point for the activities covered by this request for proposals. The 2014 study established ranges for key parameters of the fuel and vehicle markets based on a variety of sources and timeframes. Importantly it could not distinguish between actual and maximum fuel sulfur levels in most countries. The project aims at closing these data gaps in order to refine the characterization of current fuel and vehicle markets in both regions. The project also aims at

documenting current regulatory, economic, and other drivers and barriers to the introduction of cleaner fuels and vehicles in these two regions. Finally the project should provide credible projections of vehicle populations and associated fuel consumption in the two regions. The specific data to be provided as part of this project are described in further detail in the following sections:

1. Current fuel market data (2014 or latest year available, no older than 2010)

- Volume of transportation fuel produced, exported by destination and imported by origin by fuel type and sulfur level
- Volume of crude oil produced, exported by destination, and imported by origin by grade
- Current and planned refinery upgrades including projects that have recently been funded, and an estimate of annual capital expenditures on refinery expansions regionally and by country
- Domestic transportation fuel consumption by fuel type (diesel and gasoline) , sulfur level and end use (road, rail, marine, other non-road)
- Regulatory framework for setting fuel quality standards, including the agency responsible for setting standards and other entities that formally approve the proposal.
- Current and planned fuel quality standards as well as the scope of activities to enforce these standards
- Range of fuel quality available in each country (by sulfur content and cetane number for diesel fuels and octane and benzene levels for gasoline fuels). If possible, give fuel quality at subnational level, with specific attention to urban areas or sub-national regions where low sulfur fuel is already available and in use.
- Fuel prices at the pump, and where applicable, price differences between high- and low-sulfur fuels. For countries that import refined products, average fuels prices and where applicable price differences between high- and low-sulfur fuels.
- Assessment of the primary barriers and opportunities to achieving 50 ppm fuel sulfur content by 2025 and 10 ppm fuel sulfur content by 2030 including economic, regulatory, technical and political aspects.
- Description of any other important fuel market issues that are relevant to setting and enforcing fuel quality standards, including as illegal imports and exports

2. Current vehicle market data (2014 or latest year available, no older than 2010)

- Number of vehicles produced, imported and sold by type (car, truck bus, motorcycles, others), origin, condition (new/second-hand), and age/emission level (Euro level)
- Estimate of current in-use vehicle stock by type and by age
- Regulatory framework for setting vehicle standards or import restrictions, including which agency is responsible for setting standards and which entities have to formally approve the proposal.
- Current and planned vehicle standards/import restrictions as well as the scope of activities to enforce these standards or restrictions

- Assessment of the primary barriers and opportunities to adopting and implementing Euro 4/IV and standards by 2025 and Euro 6/VI standards by 2030, including economic, regulatory, technical and political aspects.

3. 2020, 2025 and 2030 scenarios (Based on planned investments and expected vehicle and fuel consumption growth rates estimate for the years 2020, 2025 and 2030)

- Volume of transportation fuel produced and exported by destination; and/or volume of transportation fuel imported by origin; for all volumes, indicate fuel type and sulfur level
- Volume of crude oil produced and exported by destination; and/or imported by origin and by fuel grade
- Domestic transportation fuel consumption by fuel type (diesel and gasoline), sulfur level, and end use (road, rail, marine, other non-road)
- Number of vehicles produced, imported and sold by type (car, truck bus, motorcycles, others), origin, and condition (new/second-hand) and age/emission level (Euro level)

The information gathered and estimated should be presented in tables and figures that highlight the regional linkages (i.e. regional maps). All the references for the data cited should be provided. We anticipate that not all data will be available. The proposal should include how the consultant will address potential data gaps.

## Tasks and deliverables

The primary deliverable for the project is a report compiling the requested data and analysis. Table 1 below itemizes the major elements associated with the project tasks, with various milestones that help ensure timely completion of the various tasks of the project.

Table 1. Project deliverables and timeline

Area	Elements	Expected Date*
Task 1. Kick off	Video or teleconference with the consultant project team	Within 1 week of contract signing
Task 1 Baseline data	· <b>Deliverable:</b> Memo presenting fuel and vehicle flows including data	Within 6 weeks of contract signing
Task 2 Regulatory context and barriers to	· <b>Deliverable:</b> Memo summarizing regulatory context in each country and barriers/opportunities to clean fuels and vehicles regulations	Within 8 weeks of contract signing
Task 3 2020 and 2025 scenario	· <b>Deliverable:</b> Memo presenting scenario results for 2020, 2025 and 2030	Within 12 weeks of contract signing
Task 4 Final Report	· <b>Deliverable:</b> Draft and final report compiling memos from Task 1, 2 and 3	Draft within 14 weeks. Final 2 weeks after receiving ICCT comments

# Guidelines for proposal submission

The RFP responses should include the following:

## Transmittal letter

The transmittal letter shall be in the form of a standard business letter on the consultant's letterhead, signed by an individual authorized to legally bind the consultant and shall include the name, title, address, email address and telephone number of the individual(s) who can be contacted for questions regarding the RFP response. Disclosure of any real or potential conflict of interest must be provided based on the firm's clients, proposals to pending clients, direct business or significant personal relationship with any ICCT council member, board member or staff member.

## Methodology

Provide a detailed methodology describing how your firm will perform the tasks detailed in this RFP and achieve the overall RFP objectives.

Provide a list of tasks and a timeline for the completions of these tasks.

Provide a discussion of potential challenges in accomplishing the proposed tasks and how they would be addressed.

## Team and organization overview

Describe your organization, its overall mission, customer service philosophy and culture, current staffing, and other pertinent resources related to this project.

Provide resumes (including education and experience) of individuals that would be assigned to the ICCT project.

Provide a separate listing of relevant analyses, reports, and activities that were conducted by the proposed researchers and are related to this RFP.

Provide a list of references that can attest to the researchers completion of projects that are similar to this RFP's scope.

## Project management process

Describe your firm's process for managing the project and dealing with clients, including the frequency, and method of regular communications regarding project status with client.

Describe your firm's process for quality assurance and quality control, project cost controls, and timeline adherence.

## **Fees**

- Please provide a breakdown of all fee areas, hourly rates for individuals, and the breakdown of person-hours by major task and deliverable.
- Describe the frequency and timing of your preferred fee payment requirements.

Note that the ICCT will not reimburse any consultants for the costs related to preparing and submitting a proposal.

## **Conflict of Interest**

Disclosure of any real or potential conflict of interest must be provided based on the applicant's clients, proposals to pending clients, direct business or significant personal relationship with any ICCT council member, Board member or staff member.

## **Terms and conditions**

The written RFP responses and any subsequent bids made during the procurement process will be considered binding commitments by the prospective vendors. The ICCT may request additional information or clarification of any obligation, if a contract is awarded.

The bidder agrees to be bound by this RFP response for a period of 45 calendar days from the RFP response due date during which the ICCT may request clarification or correction of the RFP response if necessary for the purpose of evaluation.

The cost of preparing the RFP response is the sole responsibility of the bidder, whether or not any award results from solicitation.

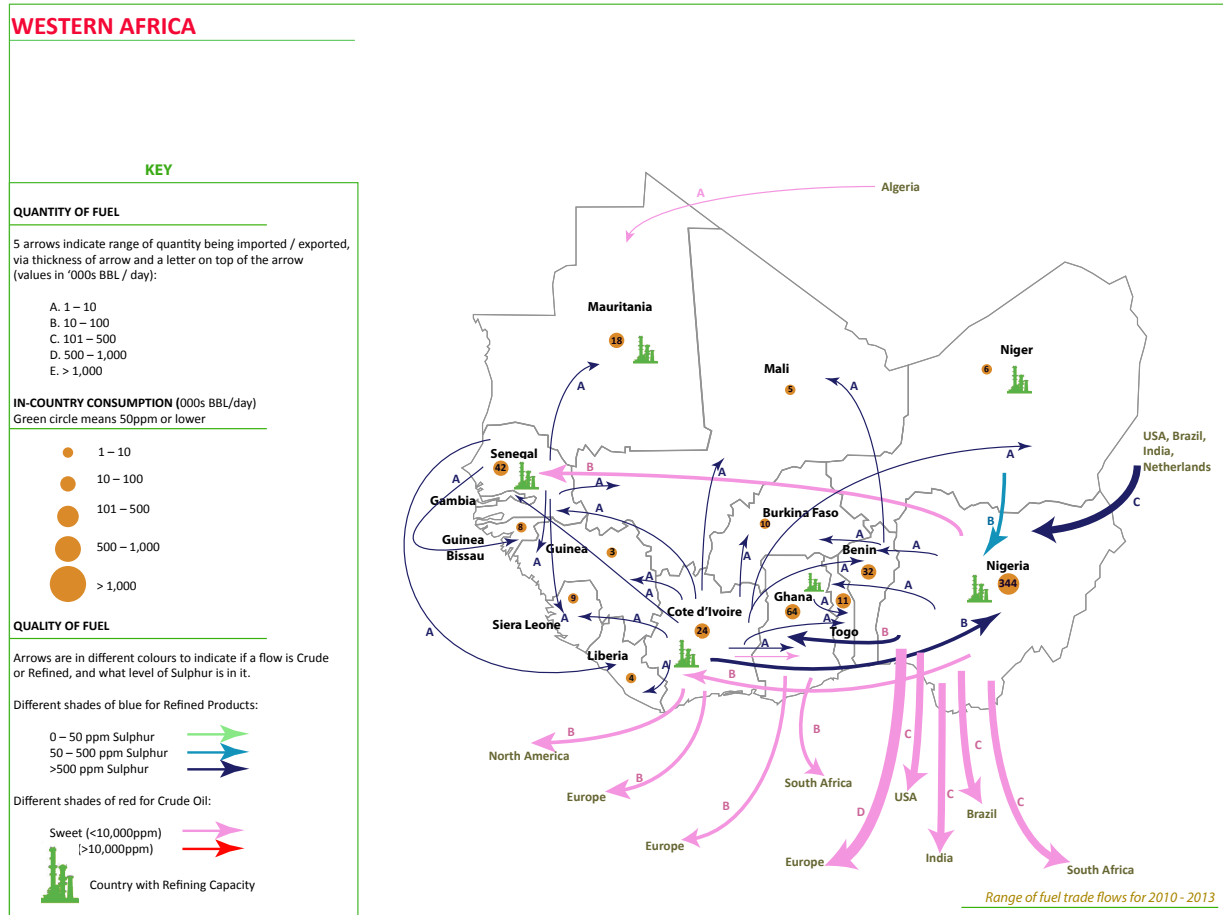
The ICCT reserves the right to add provisions to the contract consistent with the contractor's bid and to negotiate with the contractor other additions to, deletions from, and/or changes in the language in the contract — provided that such addition, deletion, or change in contract language would not, in the sole direction of the ICCT, affect the evaluation criteria set forth herein, or give any bidder a competitive advantage.

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## West Africa

Benin, Burkina Faso, Côte d'Ivoire, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo

Figure 1: West Africa Fuel Flows



West Africa has little trade interaction with other African sub-regions, apart from a small volume of sweet crude exported to Cameroon and some sweet crude sales to South Africa. As a whole, it is fairly self-sufficient; however Nigeria, the largest consumer of petroleum by a significant margin, does import refined products from outside the region as well as high sulphur crude for its own consumption (see Table 3, Annex 2).

The three main producers in West Africa – Cote d'Ivoire, Nigeria and Ghana – export most of their sweet crude out of the sub-region to Europe, USA, India, Brazil and South Africa. Niger has a small level of production, most of which is exported as refined product to Nigeria.

While production does fluctuate due to internal conflict and political unrest, Nigeria is by far the largest producer and supplies the bulk of West Africa's crude.

While Nigeria is a significant producer on the global market, Cote d'Ivoire has a more critical role as a local refining hub. It produces some sweet crude, most of which it exports to

North America and Europe. It then imports more crude from Nigeria, which it refines for its own market and exports as high sulphur fuels to twelve of its neighbours (Mali, Burkina Faso, Liberia, Sierra Leone, Guinea, Senegal, Ghana, Togo, The Gambia, Benin and Niger and Nigeria).

Although smaller in scale and influence, Senegal also acts as a refining hub, by importing Nigerian crude, refining it for internal use and export and exporting to five of its neighbours (Liberia, Guinea Bissau, Guinea, Sierra Leone and Mali).

Sulphur levels tend to be high across the sub-region, with standards ranging from 1,000 to 5,000ppm. Only Niger has lower than 500ppm diesel quality from the country's refinery production, and could consider lowering its national standard from 2000ppm to at least 500ppm. There is little indication of change in the region, with the notable exception of Cote d'Ivoire, the main supplier of refined products in West Africa. The country has set 2017 as the year to implement 50ppm for diesel. If this happens, it could provide an opportunity to improve standards on fuel quality for all neighbouring countries.

Nigeria's refineries need upgrading, and there are discussions about building the largest refinery in Africa. The government has prepared 50ppm standards but has not adopted them. While the import standard for diesel is 3,000ppm, their own refinery produces 1,000ppm sulphur fuel. It is conceivable that they could improve the import standard, since much of their imported fuel comes from low sulphur countries (although occasionally they do import higher sulphur fuel from Central Asia); indeed, it is conceivable that some of the imported products are already low in sulphur. By bringing in cleaner fuel, the government and national distributors could improve significantly the overall quality of fuels in Nigeria, either by sending the cleaner fuels to larger urban centres or by mixing with their own refined products. Since three quarters of the oil products consumed are imported, a cleaner import standard would have a significant impact not only within the country, but also in the sub-region.

Although Nigeria doesn't directly supply a lot of refined products in the sub-region, its high sulphur fuel standard has an impact nonetheless on Benin, Mali, Burkina Faso, Togo and Ghana. The ships that bring in refined products for Nigeria also supply other importing countries. Given that Nigeria is a considerably larger consumer than its neighbours, its standard defines what will be delivered to the area. Benin for example has fuel storage capacity, and therefore supplies some refined products to Mali and Burkina Faso, purchased from the same source that Nigeria imports from.

**VEHICLES:** In the West Africa region, only Nigeria has introduced a national vehicle emissions standard – Euro 2 for light duty vehicles – and plans to introduce Euro 3 vehicle standards by 2015; however the country doesn't have the matching fuel.

The following countries have age-related restrictions on second hand vehicles: Cote d'Ivoire (anything older than 10 years is fined on import and annually); Ghana (a penalty is applied to vehicles older than 5 years); and Niger (no vehicle older than 5 years). Nigeria bans anything older than 15 years, which isn't a particularly meaningful limit.

When comparing fuel and vehicle standards (Tables 3 and 4, Annex 2), Niger has the possibility of going to Euro 3 vehicle emission standards, based on current fuel quality. If Cote



d'Ivoire does implement a 50ppm standard, this would provide an opportunity for the sub-region to also tighten vehicle emission standards.

**Table 1: West Africa Fuel Flows**

Country	Diesel Standards (ppm S)		IMPORT '000s BBL/d (ppm S)			EXPORT '000s BBL/d (ppm S)			Production '000s BBL/d (ppm S)	Consumption '000s BBL/d (ppm S)
	Current (Actual)	50ppm Date	Crude	Refined	Where from	Crude	Refined	Where to		
Côte d'Ivoire	3,500 (2500)	2017	60		Nigeria	35	40	Nigerian crude to N America, Europe Refine imported crude for Nigeria, Mali, Burkina Faso, Liberia, Sierra Leone, Guinea, Senegal, Ghana, Togo, The Gambia, Benin and Niger	38 (sweet)	24
Ghana	5000	2020	57		Nigeria	100		Europe, South Africa	100 (sweet)	64
Mauritania					Crude from Algeria; Refined from Senegal				7	18
Niger	2000 (380)	2009					14 (to be 60)	Nigeria, Togo	20	6
Nigeria	5000 (1330)			84 – 300 (Sulphur level?)	Niger, Brazil, India, The Netherlands, Cote d'Ivoire Imports up to ¾ oil consumed; largest refinery in Africa is planned to start in 2016	2,200		Production fluctuates w conflict USA, India, Brazil, Europe, South Africa, Ghana, Benin, Togo	2,000 - 2,524 (mostly sweet)	344
Senegal	5000	2009	25	17	Nigeria crude		Re-exports as a hub	Liberia, Guinea Bissau, Guinea, Sierra Leone, Mali		42

**Table 2: West Africa Vehicle Market**

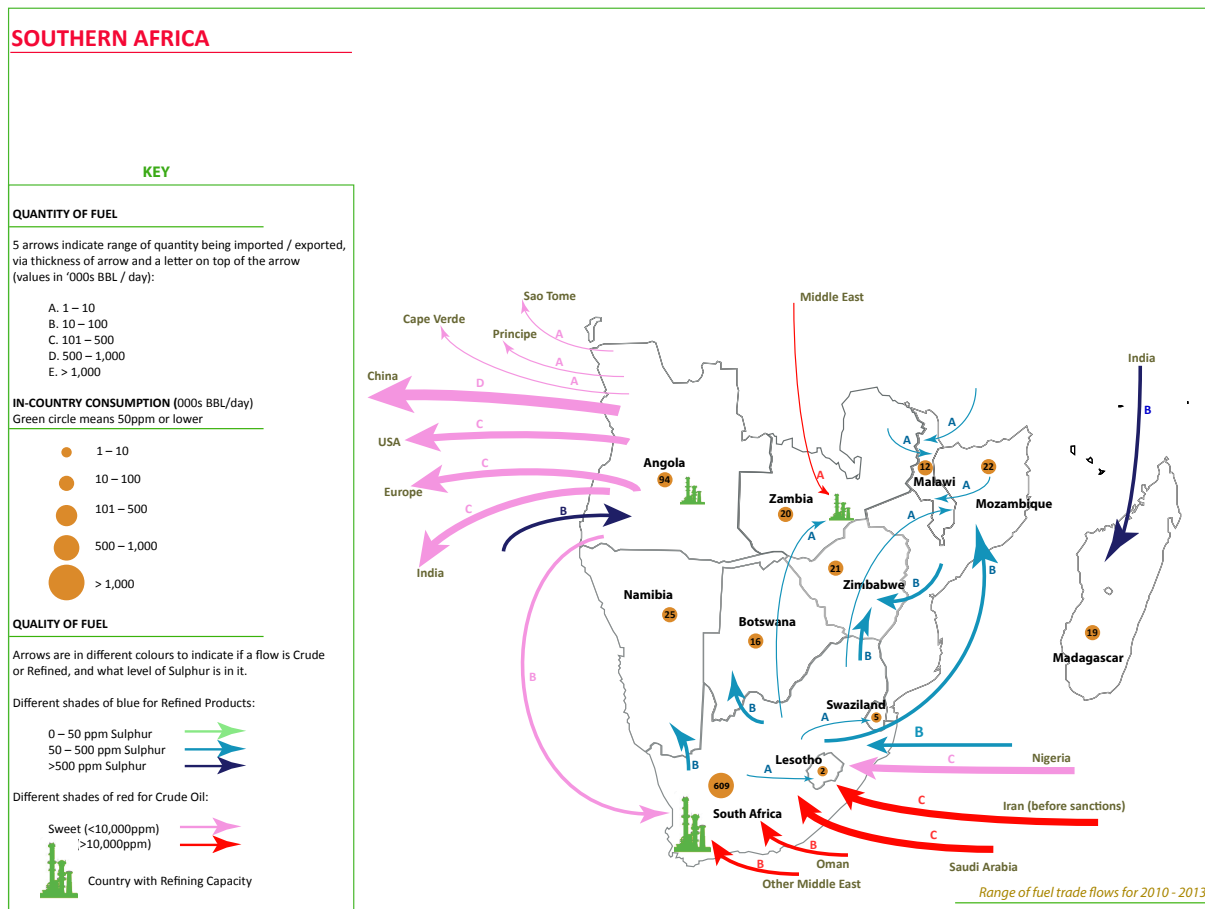
Country	Import From / Export To	Used Vehicle Import	Motorisation Rate (vehicle / 1000 people)	Vehicle Emission Standard		Comments
				Current	Planned	
Benin	Imports \$83mill		22			No import restrictions on vehicle age basis
Burkina Faso	Imports \$134mill		11			No import restrictions on vehicle age basis
Côte d'Ivoire	Imports \$456mill Exports \$26mill	> 10 years old: fined on import & annually	41			
Ghana	Imports \$2,213mill	> 5 years old pay penalty	31			
Guinea	Imports \$129mill	Ban lifted in 2001				
Mali	Imports \$160mill		11			No import restrictions on vehicle age basis
Niger	Imports \$160mill	< 5 years old if from outside SACU area	7			

Country	Import From / Export To	Used Vehicle Import	Motorisation Rate <i>(vehicle / 1000 people)</i>	Vehicle Emission Standard		Comments
				Current	Planned	
Nigeria	Imports \$10,191mill	< 15 years old, Euro 2	20	Euro 2		
Sénégal	Imports \$371mill		37			

## Southern Africa

Angola, Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Zambia, Zimbabwe  
(SADC also includes DRC and Tanzania)

Figure 2: Southern Africa Fuel Flows



The only major producer in the region is Angola. Currently, the country exports most of its sweet crude out of the region, with the remainder going to South Africa, and imports refined products. Angola is constructing a new refinery that is scheduled to come online by 2017. The refinery will process Angola's crude oil into refined products that meet European and American specifications; these will be sold to domestic and international markets, including Europe and the USA. Assuming Angola does in fact consume the cleaner products from the new refinery (as opposed to exporting all the clean fuel and importing cheaper fuel), it will benefit from access to (ultra) low Sulphur gasoline and diesel.

While Angola is the major producer in the sub-region, it's South Africa that is for now a primary hub with the third largest refinery system in Africa (after Algeria and Egypt). It imports

95% of its crude oil requirements, but most of its products are refined in the country; it only imports products if there is an internal shortfall. South Africa is a key supplier of refined products to eight of its neighbours. It has embarked on an ambitious plan to upgrade existing refineries and to build a 300,000bbl/d refinery, all of which should meet a 10ppm sulphur standard by 2020. Once South Africa moves to low sulphur fuels, this could impact fuel quality in Botswana, Lesotho, Namibia, Swaziland, Mozambique, Zambia, Zimbabwe and Malawi, and these countries could consider tightening their import standards accordingly.

Mozambique is a second hub, as it imports and then re-exports to Malawi and Zimbabwe (similar to Kenya).

Madagascar is outside the sub-region's fuel trade as it imports refined products from India. However it has a high sulphur level standard that doesn't reflect the quality that India produces; either India is exporting high sulphur fuel to Madagascar, or Madagascar could improve its standard to match what it currently imports. Indeed, there are plans to improve the diesel fuel specifications to 500ppm. Mauritius is the only country in the sub-region that has attained 50 ppm diesel standard nationally while with South Africa availing 50 ppm diesel fuels in its the major towns.

**VEHICLES:** Limitations on importation of second hand vehicles vary across the sub-region. Angola allows individuals to import any aged vehicle but not motor companies. Botswana prohibits import of vehicles with more than 100,000km of mileage. Age limits for second hand imports are set in Lesotho (8 years) and Mozambique (5 years for cars; 9 years for vans), while South Africa bans all second hand vehicles with a few exceptions. South Africa is a major manufacturer of vehicles and has the second highest motorisation rate in Sub-Saharan Africa (after Congo-Brazzaville).

When comparing fuel and vehicle standards (Tables 7 and 8, Annex 2), Mozambique can implement at least Euro 2 vehicle emission standards, based on current fuel quality. Once South Africa implements its 10ppm standard for both gasoline and diesel, it plans to set a Euro 5 vehicle emission standard. Given that Mozambique and South Africa supply most of Southern Africa fuel, it is conceivable that all the countries could likewise implement higher vehicle standards to match the fuel quality.

**Table 3: Southern Africa Fuel Flows**

Country	Diesel Standards (ppm S)		IMPORT '000s BBL/d (ppm S)			EXPORT '000s BBL/d (ppm S)			Production '000s BBL/d (ppm S)	Consumption '000s BBL/d (ppm S)
	Current	50ppm Date	Crude	Refined	Where from	Crude	Refined	Where to		
Angola	3000			55	New refinery by 2017 will process local crude for local supply From where?	1,660		China, USA, Europe, India, Canada, Taiwan, South Africa Sao Tome, Principe, Cape Verde & other neighbours	1,700 (mainly sweet)	94
Madagascar	5000	2008?		19	India					19
Mozambique	500	2008		22	South Africa			Imports more fuel for re-export to other countries		22
South Africa	500 (50ppm in cities)	2020 (10ppm)	420	80	Iran, Saudi Arabia, Nigeria, Angola, Oman		100	Botswana, Lesotho, Namibia, Swaziland, Mozambique, Zambia, Zimbabwe, Malawi 3 <sup>rd</sup> largest refinery system in Africa	181 (160 is synthetic fuels from coal)	609
Zambia	500 (import) 5000 (refine)		10 (?)	10 (?)	Middle East (crude) South Africa (refined)					20

**Table 4: Southern Africa Vehicle Market**

Country	Import From / Export To	Used Vehicle Import	Motorisation Rate (vehicle / 1000 people)	Vehicle Emission Standard		Comments
				Current	Planned	
Angola		Motor companies can't import used; Individuals can import any age	37			
Botswana	Imports \$618mill	< 100,000km	131			
Lesotho	Imports \$259mill	< 8 years old				
Madagascar	Imports \$175mill		25			
Malawi	Imports \$137mill		9			No import restrictions on vehicle age basis
Mozambique	Imports \$437mill	Cars: < 5 years old Vans: < 9 years old	13			
Namibia	Imports \$778mill Exports \$159mill		107			
South Africa	Imports \$8,768mill Exports \$7,572mill New motor vehicle	Banned with exceptions	169 Vehicle population =	Euro 2		Manufactures vehicles – 539,424

Country	Import From / Export To	Used Vehicle Import	Motorisation Rate (vehicle / 1000 people)	Vehicle Emission Standard		Comments
				Current	Planned	
	sales (2008): LDV 295,064 HDV 193,947		7.7million			
Zambia	Imports \$644mill		23			No import restrictions on vehicle age basis
Zimbabwe	Imports \$522mill		58			Assembles vehicles – 829

